SD11
.P921
1975

Director, Ogden

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

1975 ANNUAL REPORT

PRIEST RIVER EXPERIMENTAL FOREST
PRIEST RIVER, IDAHO

by

Calvin L. Carpenter

U.S. GOVERNMENT PRINTING OFFICE : 1973 O—522-184

6200—M7 (10/73)

1380
January 10, 1976

1975 ANNUAL REPORT

PRIEST RIVER EXPERIMENTAL FOREST

PRIEST RIVER, IDAHO

by

Calvin L. Carpenter

DISTRIBUTION:
Director, Ogden
Klawitter
Foiles
NFFL
IPNF, SO
Priest Lake RD
RWU 1206
RWU 1601
RWU 2205
RWU 1451
RWU 2204
PREF

Intermountain Forest and Range Experiment Station
Ogden, Utah

TABLE OF CONTENTS

	Page No.
RESEARCH ACTIVITIES	
Timber Management Research	1
Genetics	1
Forest Insect Research	1
Watershed Management Research	2
Range Management and Wildlife Habitat Research	2
ADMINISTRATIVE ACTIVITIES	
Fire Protection	3
Forest Roads	3
Forest Management	3
Timber Sales	4
Forest Influences	5
Headquarters Maintenance	10
Buildings	10
Personnel	11
Meetings, Group Visits, and Inspections	11
Research Cooperators	12
Cooperation	12
Youth Conservation Corps	13

INTRODUCTION

Progression in forestry research projects, continued through the 64th consecutive year. Along with the regular scheduled activities, innumerable plans were being made in preparation for the coming year, which will be the 65th Anniversary of the Priest River Experimental Forest. Cooperation from units within the Intermountain Station, National Forest Systems, and the Youth Conservation Corps contributed greatly to early accomplishments for the coming year.

RESEARCH ACTIVITIES

Timber Management Research

Permanent sample plots listed below were remeasured.

110	Benton Flat
111	Benton Creek
112	Benton Flat
113	Benton Flat
114	Benton Creek Road
117	Benton Creek
118	Benton Creek
155	Lower Benton Creek

Additional measurements in western redcedar understory included tallying height and diameter in plots 102, 103, and 104 located in Benton Flat.

Intensive timber culture study unit 101 was installed and will be included in the stand modeling study concerned with regeneration development. Location is midway along the 597-A-1 road near the Experimental Forest headquarters.

Genetics

RWU 1451.--Inspected western white pine seedlings for infection by blister rust. These seedlings are located in the nursery and are part of a test to determine levels of resistance in natural stands. The seedlings were inspected twice; once in June for needle spots, a second time in September for needle spots and cankers.

The Canyon Creek plantation was measured for annual growth rate of western white pine to determine correlations of growth rate and mechanisms of resistance.

Forest Insect Research

Larch casebearer populations were sampled in December on western larch and European larch to compare densities of overwintering (3rd instar) larvae by host-tree species generations (1973 vs. 1975), by sampling unit (#LCB/spur shoot vs. #LCB/8" branch), and on current-year vs. older branches. Results are being prepared for publication.

Subcortical insects were reared from exotic pines that died recently in the Weidman Arboretum. Tree species involved were Swiss mountain pine, Scotch pine, and bristlecone pine. Included among the reared insects is a species of bark beetle which will be a new record from bristlecone pine in Idaho.

Watershed Management Research

RWU 1601.--Installations, which include subdrainages #4, 5, and 6, were maintained through the year until freezing temperature made it impossible for proper instrument function. Bimonthly service checks at these three stations will continue when conditions permit. The Main Benton stream gaging station instruments, a water level recorder, and recording raingage were serviced weekly throughout the winter season.

Range Management and Wildlife Habitat Research

RWU 1705.--FSL Missoula, Montana utilized lodging quarters during the period July 8-10, for a three-man crew, who expended approximately 8 mandays in field work at the Experimental Forest. Work accomplished consisted of obtaining quantitative data for all classes of vegetation occurring on 12 permanent forest succession transects situated on five study sites. Data collected provide treatment information on the sequential development of seral vegetation for a long term study investigating the effects of logging practices on big game habitat.

ADMINISTRATIVE ACTIVITIES

Fire Protection

A thorough review of the fire plan was made at the Annual Cooperative meeting of the Forest, District, and INT Station. During the 1975 fire season, the Priest Lake District fire prevention guard made weekly patrols of the Experimental Forest. During high hazard conditions and huckleberry season, patrols were increased. A three-man group (Falls Fire Crew) operated as an initial attack crew and patrolled the main traveled Experimental Forest roads and high points, maintaining a constant fire alert and keeping roads cleared.

Forest Roads

Annual spring road maintenance included down wood removal, culvert clearing and opening, and rock removal on the main roads. Brush was removed at sign locations, and signs were straightened and reset as needed.

Approximately 5 miles of 597-B (South Ridge Road) was surface graded and drain ditches reopened. This work was done using regular Forest Service equipment and operator from Sandpoint Zone Engineering.

Three new system roads were contructed with the two units of the Ida-Benton timber sale.

1. 597-C-1 Approximate length - 0.26 mi.
2. 597-I-2 Approximate length - 0.11 mi.
3. 597-J-1 Approximate length - 0.63 mi.

A cattleguard and a barbed wire gate were installed at the junction of 597-A road and county road, the main entry to the PREF headquarters station, as part of the timber sale.

Forest Management

Shrubs and tree reproduction were removed from Plot 162, Racial Variation in Ponderosa Pine, in preparation for the celebration of the 65th Anniversary of Forest Research in the Northern Rocky Mountains.

Foiles and Carpenter planned and marked a trail leading to early and present day research sites. The trail originates at the junction of roads 597-A-1 and 597-P-1 at the headquarters and proceeds through the 1914 Larson thinning plots, the 150-foot steel tower, the nursery, the ponderosa pine racial variation test, past the old Ranger Station site to the full-timber and half-timber inflammability stations and terminates at the clearcut with the original fire danger station. Road 597-A-1 was used for a return route to the headquarters. YCC crews cleared and graded about half of the total distance this summer. Completion is scheduled for July 1976.

The PREF Nursery Sale site was cleared of unburned slash, and all remaining stumps were excavated and transported to a burn site and burned in late fall 1975. The cleared area was graded, rolled, and 400 yds of backfill gravel was hauled in to provide road base for vehicle parking during the 65th Anniversary of Forest Research in the Northern Rocky Mountains, which is planned for August 9-13, 1976.

Timber Sales

Ida-Benton (Diamond International Corporation, 11/25/74).--This sale consists of two cutting units: #1 which lies in a portion of section 26, T58N, R4W, and unit #2 which lies in portions of sections 23 and 24, T58N, R4W, B.M., Bonner County, Idaho. The combined sale area is 58 acres. In addition, 2 acres of rights-of-way outside of cutting units will be cutover. The estimated quantity and unit of measure is as follows:

	Bid Price	Quantity
White pine	$100.00	66 MBF
Ponderosa pine	56.50	64 MBF
Douglas-fir, larch	28.38	380 MBF
Lodgepole pine, spruce	2.97	4 MBF
Cedar	39.42	124 MBF
Grand fir, hemlock, alpine fir	4.83	7 MBF
Logs--live and dead		100 Cunits
Pulplogs, all species except cedar	0.30	
Cedar products	2.08	1 MBF
Total		100 Cunits 646 MBF

Salvage (Hahn & Hahn).--This sale consisted of further utilization of Experimental Forest dead and down, and stand dead material. The operators arrived during early summer and discontinued the operation by mid-December. The first contract (Center Ridge Salvage Sale) included removal of approximately 30 MBF. A second contract (PREF N-5-N-7 Salvage Sale) amounted to 18 MBF. Due to adverse weather conditions, it was impossible to remove a minor amount of sawlogs. Hauling of the remaining material will be completed in early summer 1976.

Observatory Point Timber Sale (Proposed).--Preliminary surveys have been completed on a 174-acre area proposed for timber harvest in 1977. The plan is to test several regeneration cutting methods on this area, ranging from clearcutting to stem selection. The final design of the test will be completed next year following considerations of an Environmental Analysis Report. The preliminary plan is to divide the area into six units to be treated as follows:

Unit	Acres	Cutting Method
1	47	Group selection
2	43	Shelterwood
3	24	Group selection
4	26	Stem selection
5	24	Clearcut
6	10	Stem selection

Preliminary estimates indicate two or three of the following roads will be needed for this sale:

597-M-2	0.4 mi.
597-M-4	0.5 mi.
597-M-7	1.0 mi.

Forest Influences

Control Weather Station

Table 1 provides climatic information taken each day at 1700. Continuous and unbroken records have been maintained for the past 64 years. Midweek and monthly summaries are submitted to the local news media, and upon request, are provided for varied government agencies, state agencies, private industry, universities, public schools, and private individuals.

Figure 1 depicts cumulative precipitation for the 1974-1975 water year and also includes the comparative trends for the wettest year, driest year, and a 50-year mean (1912-1961).

Table 2 contains total monthly and total annual precipitation as compared to the 16-year (1960-1975) averages for three different stations located within the Benton Creek watershed.

Fire Weather Station

Daily observations, which are maintained at this site, are recorded and submitted at 10-day intervals to the fire dispatcher, located at the Supervisor's Office in Coeur d'Alene, Idaho. Observations are made from May 1 to October 31.

Snow Survey

Table 3 summarizes the results of snow measurements which were made starting January 1, 1975 and continuing until the end of the runoff period. Previous to 1975, the two snow courses, Benton Springs and Benton Meadow, were maintained by regular INT Station personnel, but due to the transfer of Bud Jeffers, Forestry Tech., RWU 1601, it was necessary to acquire the aid of a member of the cooperating agency. Vern Bromgard, Soil Conservation Service, Sandpoint, Idaho assisted in taking the Benton Spring survey, and Cal Carpenter maintained the Benton Meadow course through the season.

Table 1.--Control Stn. monthly precipitation and temperature - 1975.
Figures in parentheses are 50-year (1912-1961) averages.

Month	Precipitation		Temperature Ave.	Max.	Ave.	Max.
	- - inches - -		- - - - - - - - - - degrees F. - - - - - - - - - -			
Jan.	3.55	(4.02)	29.0	(30.3)	19.6	(16.6)
Feb.	4.32	(3.09)	32.9	(36.4)	18.5	(18.3)
Mar.	2.61	(2.65)	40.6	(45.3)	25.0	(23.5)
Apr.	2.14	(2.04)	51.3	(57.6)	28.6	(29.6)
May	1.62	(2.18)	66.4	(66.7)	38.0	(36.6)
June	2.31	(2.27)	71.0	(73.5)	44.9	(42.5)
July	2.13	(0.89)	86.7	(83.1)	54.0	(45.5)
Aug.	2.83	(0.97)	77.2	(82.0)	48.0	(43.4)
Sept.	0.33	(1.67)	75.8	(70.4)	39.3	(37.4)
Oct.	3.68	(2.96)	53.6	(56.6)	37.9	(32.1)
Nov.	2.98	(3.76)	36.9	(39.6)	25.0	(26.7)
Dec.	3.76	(4.37)	32.4	(32.5)	23.7	(21.1)
Annual	32.26	(30.87)	54.4	(56.1)	33.5	(31.0)

Table 2.--Precipitation at three stations on Benton Creek.
Figures in parentheses are 16-year (1960-1975) averages.

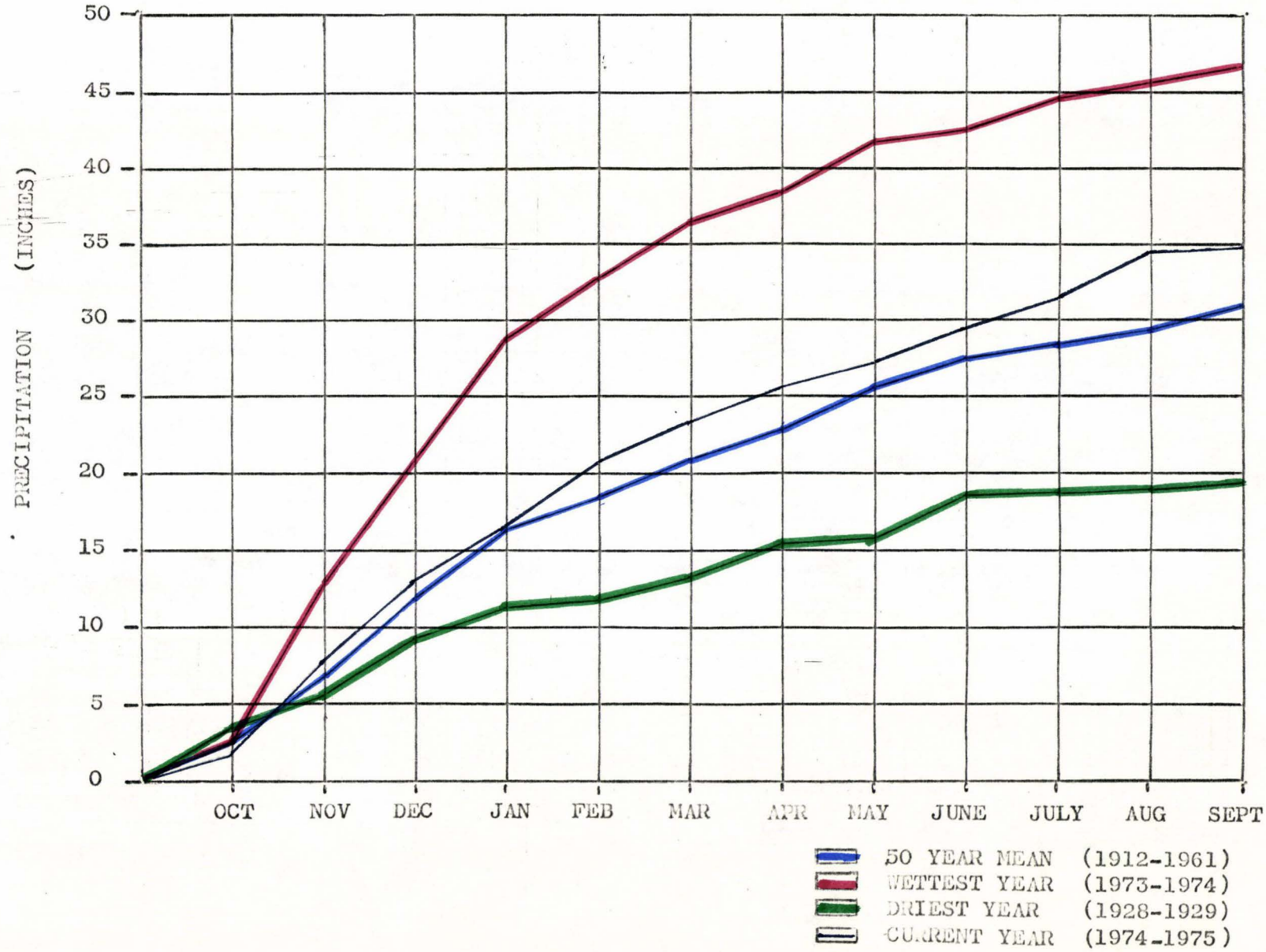
Month	Control Stn. Elev. 2344'		Benton Dam Elev. 2640'		Benton Spring Elev. 4775'	
	inches					
Jan.	3.55	(4.69)	3.38	(5.22)	3.90	(4.60)
Feb.	4.32	(2.85)	4.63	(2.96)	4.90	(3.47)
Mar.	2.61	(2.88)	2.29	(3.04)	4.00	(3.63)
Apr.	2.14	(1.99)	2.19	(2.17)	3.30	(2.76)
May	1.62	(2.40)	1.47	(2.45)	2.10	(3.16)
June	2.31	(2.04)	2.44	(2.17)	3.10	(2.71)
July	2.13	(0.92)	2.35	(0.98)	2.90	(1.23)
Aug.	2.83	(1.33)	2.70	(1.48)	2.80	(1.64)
Sept.	0.33	(1.58)	0.33	(1.56)	0.80	(1.79)
Oct.	3.68	(2.42)	3.76	(2.34)	4.80	(2.69)
Nov.	2.98	(4.92)	2.87	(4.96)	2.80	(5.02)
Dec.	3.76	(4.89)	3.06	(5.16)	2.20	(5.50)
Total	32.26	(32.91)	31.47	(34.49)	37.60	(38.20)

Table 3.--Snow depth and water content for Benton Meadow and Benton Spring snow courses, 1975. Figures in parentheses are 25-year average (1937-1961).

Month	Benton Meadow (Elev. 2344')				Benton Spring (Elev. 4775')			
	Snow Depth		Water Content		Snow Depth		Water Content	
	inches							
Jan. 1	15.0	(12.0)	2.8	(2.7)	36.4	(30.9)	13.8	(8.4)
Feb. 1	22.9	(19.4)	5.3	(4.8)	49.3	(46.8)	14.9	(13.7)
Mar. 1	30.6	(19.3)	8.6	(6.0)	68.0	(55.3)	21.5	(18.4)
Apr. 1	25.6	(6.2)	8.8	(2.3)	71.0	(22.1)	23.8	(20.4)
May 1	00.0	(0.0)	0.0	(0.0)	60.5	(34.0)	25.0	(14.8)
June 1	00.0	*(NA)	0.0	*(NA)	8.0	*(NA)	3.7	*(NA)

* (No average)

FIG. 1--CUMULATIVE PRECIPITATION FOR WATER YEAR, OCTOBER THROUGH SEPTEMBER
PRIEST RIVER EXPERIMENTAL FOREST, CONTROL WEATHER STATION



Headquarters Maintenance

The regular annual spring cleanup included grounds maintenance and reopening of winterized buildings. The water, sewage disposal, and electrical systems were inspected and were found to be in operable condition.

Buildings

A. Office Laboratory.--A permanent chimney cover was installed, and it was necessary to restabilize the restroom air vent above roof line. During the regular September monthly maintenance inspection, notice was made of an irregularity in the floor surface of the downstair hall and restroom area. Diagnosis of the problem seems to be the result of settling and/or dry rot in and around the chimney stack. Repair will be made as soon as possible.

B. Cottage #1 (lodge).--The sewage disposal line malfunctioned and required maintenance attention twice during the season. Corner segments of aluminum roofing torn loose from snow and ice slippage were replaced. Supplementary bunks were added within the basement sleeping quarters, and all mattresses were replaced with the inner-spring type. It is now possible to accommodate 16 people with comfortable quarters. A new fire escape of steel structure, extending from ground to second floor exit, and smoke detector fire alarms were installed as a safety improvement for personnel using the facility. The fire escape was built and installed under the supervision of Vic Hager, Moscow FSL.

C. Cottage #2.--A permanent chimney cover was installed. Minor roof repair was necessary due to snow and ice slippage. A motor replacement was required in the oil furnace.

D. Cottage #3.--Supplementary wiring was installed to handle a new water heater and clothes dryer. Arrival of the new appliances was too late for use during the season past, so will be installed for the coming 1976 season. Two double bunks were set up in the master bedroom, complete with inner-spring mattresses. Accommodations for nine people are now available in this cottage. The chimney flashing was repaired also.

E. Cottage #4.--Marlite paneling was installed on the bathroom ceiling and walls. The basement entry stairs and stairwell walls were refinished and the southeast portion of the basement was refinished for an extra room. Minor roof and chimney repair was done. The new storage shelter, which was moved to Cottage #4 the previous year, was rewired for inside and outside lighting, and the garage was reroofed with metal paneling, which matches the other existing roofs at the headquarters station.

F. Bunkhouse-Messhall.--The building was raised and the old foundation piers were removed to make way for a new foundation. Footings were poured, a new concrete block foundation was completed, and the building was reset. The old chimney located in the mess area was removed and a new one with a permanent weather cover was installed. A new fire escape of steel structure reaching from ground to second floor exit was installed by Vic Hager in time for the 1975 YCC camp activation in early June. Double bunks with inner-spring mattresses were set up to take the place of the single bunk type. All domestic water (plumbing) lines situated beneath the building required replacement also.

G. Shop.--Minor modifications in the electrical wiring were necessary in order to provide safer operation of the shop equipment.

H. The water system required repair in mid-November. A decrease in water pressure led to the discovery of a break in the main feed line to the reservoir. The break, which occurred midway between the lodge and the reservoir, was repaired and the system is back to normal. The nursery irrigation supply system and the sewage disposal system were inspected regularly and necessary minor repairs were accomplished.

I. The storage shelters, woodshed, gas pump shelter, and fuel storage building were included in the regular monthly preventive maintenance checks and were found to be in stable conditions.

J. The entire fench line between the county road right-of-way and the Experimental Forest was repaired entirely by I.R. (Inter Regional Fire) crews from the Priest Lake Ranger District.

Personnel

Position	Dates	Name
Superintendent	1/30/65 to present	Cal Carpenter
Maint. Assistant	Intermittent	Jane Knoke

Meetings, Group Visits, and Inspections

Feb. 27	Marvin Foiles, general inspection and station business conference.
Mar. 18	Fred Olness, Vic Hager, and Maxine Rookstool, safety inspection, show-me-tour for the benefit of the coming YCC encampment.
May 22	65th Anniversary of Forestry Research in the Northern Rocky Mountains planning meeting by Gary Kell, Landscape Architect, SO, Coeur d'Alene; Dan Montgomery, District Ranger, Priest Lake Ranger District; Marvin Foiles, FSL Moscow; and Cal Carpenter, PREF.
May 24	WSU field ecology class, Dr. Daubenmire and 18 students. Dr. Daubenmire retired this year; so this was his last visit with the class at PREF.
May 26	University of Montana, School of Forestry.
June 11	Planning meeting by David Blackner, Ogden and Jim Phillips, YCC Camp Director.
June 16	Fred Olness, Fran Preston, JoAnn Coupe, assist with YCC camp opening.
June 24	Bruce Rottink, inspection tour of the Antitranspirant Silicone Spray Project located on the Experimental Forest.

July 17 — Inspection of the Environmental Grid sites and monitoring procedures at locations within the Experimental Forest. Participating members were C. Wellner, A. Stage, G. Deitschman, and R. Hoff.

Aug. 18 — Experimental Forest, review and familiarization tour by Roger Bay, INT Station Director, Ogden, Utah., C. Wellner, A. Stage, M. Foiles, R. Boyd, FSL Moscow, and Cal Carpenter, PREF.

Sept. 10 — Fall inspection of cooperative research involving International Biological Program Environmental Grid sites, located on the Experimental Forest. Those attending were M. Fosberg and P. Schauer.

Sept. 15 — Dr. Lorenzo Mittempergher, Institute of Forest Pathology, Florence, Italy. To study blister rust resistance in white pine.

Sept. 23 — E. von Rudloff, Chemist, Saskatoon, Sask., Canada. To research leaf oil analyses in Douglas-fir, white pine, and white bark pine.

Research Cooperators

Dates	Individuals	Purpose
May-Nov.	Peter Schauer, U of I M. Fosberg, U of I	Maintain Environmental Grid sites & instruments
Intermittent 1974	G. Snyder, U of I	Water quality studies in cooperation with RWU 1601
April-Nov.	Howard Lowenstein, U of I Philip Hartwig, U of I	Investigation of elevation, soil, and slope differences and their effect on stand growth in a thinned hemlock-pachistima habitat type.

Cooperation

The cooperative meeting, held annually, took place at the Supervisor's Office in Coeur d'Alene, January 21, 1975. Saff meembers from the Priest Lake Ranger District and the Moscow Forestry Sciences Lab participated in discussions relating to management actions and plans for the Priest River Experimental Forest. Subjects of discussion covered reports and plans for the 1975 YCC program, public service employment, timber sales, 65th anniversary of PREF, roads, stand management records, and the memorandum of understanding.

Youth Conservation Corps

The 1975 camp, sponsored by the Intermountain Forest and Range Experiment Station, U. S. Forest Service, was activated Juny 9, and terminated August 15, 1975. The first and last week of the 10-week period was utilized by staff members only for set up and break down of the camp, leaving an 8-week season for the 20 crew members to carry on the tasks as outlined in the summer schedule.

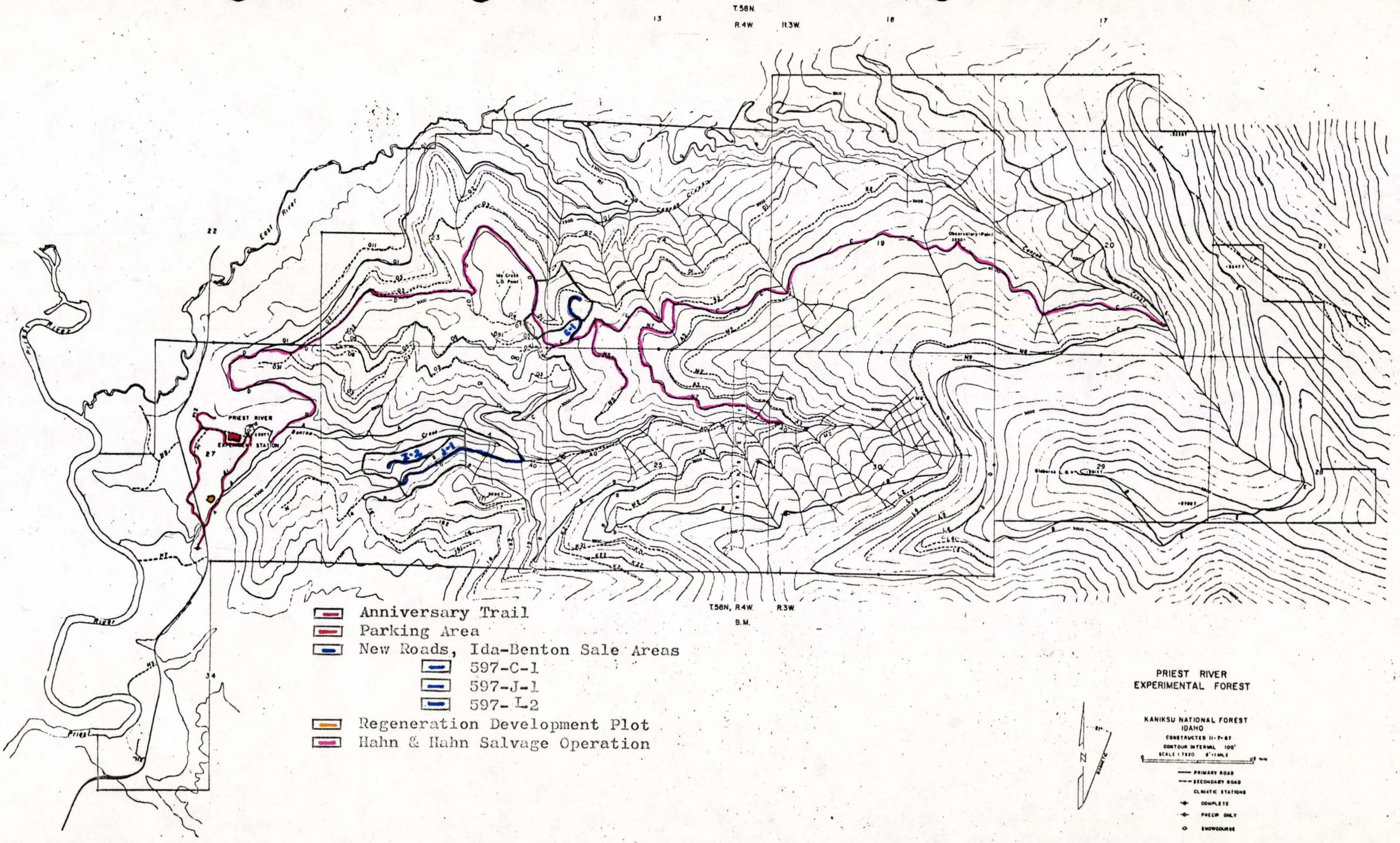
Due to a lack of funds, it was necessary to decrease the number of enrollees by four and the staff by one. The coed camp consisted of 10 male and 10 female members headed by a six-member staff, which included:

1. Jim Phillips, camp director.
2. Steve Booth, work projects coordinator.
3. Melissa Mackey, crew leader.
4. Kathryn Hunter, crew leader.
5. Doug Marousek, crew leader.
6. Maxine Rookstool, cook.

Within the 8-week period, the staff and crew members utilized the Experimental Forest and headquarters area. The mess area proved to be ample for the purpose of preparing and serving wholesome nourishing meals, and the bunk area provided comfortable sleeping quarters for the male members. The lodge (Cottage #1) was reserved for female crew leaders, crew, and cook. The surrounding outdoor area provided ideal conditions for the intensive environmental training program.

The schedule set up for the regular YCC activity program included work projects within the INT Station, National Forest, Ranger Districts, Idaho Fish and Game Dept., and the city of Priest River.

Estimation of 550 mandays were expended with an approximate valuation of $11,800.00.


T.58N.
R.4W
R.3W.
T58N, R.4W.
R.3W.
B.M.
East River
PRIEST RIVER
EXPERIMENT STATION
Priest River
Anniversary Trail
Parking Area
New Roads, Ida-Benton Sale Areas
597-C-1
597-J-1
597-L2
Regeneration Development Plot
Hahn & Hahn Salvage Operation
PRIEST RIVER
EXPERIMENTAL FOREST
KANIKSU NATIONAL FOREST
IDAHO
CONTOUR INTERVAL 100'
PRIMARY ROAD
SECONDARY ROAD
CLIMATIC STATIONS
COMPLETE
PRECIP ONLY
SNOWCOURSE